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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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10/787,144

02/27/2004

Shin-ichi Uehara

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09/18/2006

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EXAMINER

CALEY, MICHAEL H

ART UNIT

PAPER NUMBER

2871

DATE MAILED: 09/18/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | | |
|------------------------------|------------------------|--|---------------------|--|
| Office Action Summary | Application No. | | Applicant(s) | |
| | 10/787,144 | | UEHARA ET AL. | |
| | Examiner | | Art Unit | |
| | Michael H. Caley | | 2871 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 July 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-62 is/are pending in the application.
- 4a) Of the above claim(s) 3-10 and 19-62 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2 and 11-14 is/are rejected.
- 7) ☒ Claim(s) 15-18 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>04202006</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 11, and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Neijzen (U.S. Patent No. 5,731,857) in view of Inoue et al. (U.S. Patent No. 6,172,723 “Inoue”).

Regarding claim 1, Neijzen discloses an image display device having:

a display panel which has a plurality of pixel sections (Figure 3a) provided in the form of a matrix, each pixel section including at least a pixel for displaying an image for a first viewpoint (Figure 3a element 27') and a pixel for displaying an image for a second viewpoint (Figure 3a element 27'');

a lens (Figure 3a element 61) disposed in front of the display panel, the lens being constituted by a plurality of lens elements (Figure 3a element 63) for refracting light emitted from each pixel to output the light in different directions (Figure 3a); and

a reflection plate (Figure 3a element 7) disposed in the display panel or in the rear of the display panel;

wherein the focal distance of the lens is different from the distance between the surface of the reflection plate and the apex of the lens (Column 8 lines 7-10).

Neijzen fails to disclose the reflection plate as having surface projections on the surface for reflecting exterior light to the lens. Inoue, however, teaches surface projections on a reflective surface used in combination with a microlens as advantageous to improve the contrast of the display (Column 12 line 46 – Column 13 line 9).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to include surface projections on the reflection plate of the display panel disclosed by Neijzen. One would have been motivated to include such surface projections as a means of improving the display contrast according to the teachings of Inoue.

Regarding claim 11, Neijzen discloses the focal distance of the lens as larger than the distance between the surface of the reflection plate and the apex of the lens (Column 8 lines 7-10).

Regarding claim 13, Neijzen as modified by Inoue discloses the relation among H , f , V and L as proposed. Neijzen discloses H/f as approximately $\frac{1}{2}$ (Column 8 lines 7-10). Given that the projections are formed from a roughened surface of the pixel electrode and the lens pitch is equal to the pixel pitch, it would follow that V (projection pitch) is extremely small compared to L (lens pitch) in the display device taught by Inoue. In order to satisfy the proposed equation, there needs to exist at least two or more projections per pixel, given the ratio between H and f disclosed by Neijzen. Because Inoue teaches many projections within the roughened surface (see Figure 13 element 307), the combination of references teach the claimed limitations.

Claims 2, 12, and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Neijzen in view of Inoue and Masuzawa (U.S. Patent No. 6,765,638).

Neijzen as modified by Inoue discloses each of the proposed limitations except for each pixel as including a transmissive region and a reflective region. Masuzawa, however, teaches a reflective display having condensing microlenses (Column 13 lines 16-19) as configurable to have pixels with both transmissive and reflective regions (abstract, Column 19 line 66 – Column 20 line 8).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to form the display device disclosed by Neijzen to have both reflection and transmissive regions in each pixel. One would have been motivated to form the display device to have both reflective and transmissive regions to enable use of the display in poorly lit areas according to conventional methods of the art.

Regarding claim 12, Neijzen discloses the focal distance of the lens as larger than the distance between the surface of the reflection plate and the apex of the lens (Column 8 lines 7-10).

Regarding claim 14, Neijzen as modified by Inoue discloses the relation among H, f, V and L as proposed. Neijzen discloses H/f as approximately $\frac{1}{2}$ (Column 8 lines 7-10). Given that the projections are formed from a roughened surface of the pixel electrode and the lens pitch is equal to the pixel pitch, it would follow that V (projection pitch) is extremely small compared to

L (lens pitch) in the display device taught by Inoue. In order to satisfy the proposed equation, there needs to exist at least two or more projections per pixel, given the ratio between H and f disclosed by Neijzen. Because Inoue teaches many projections within the roughened surface of each pixel (see Figure 13 element 307), the combination of references teaches the claimed limitations.

Allowable Subject Matter

Claims 15-18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: The prior art fails to disclose or suggest a relationship between the optimal observation distance, expanded pixel projection width, lens refractive index, focal distance, and pitch of the pixels satisfying the proposed expressions.

Response to Arguments

Applicant's arguments filed 7/5/06 have been fully considered but they are not persuasive.

Applicant argues that Niejzen fails to disclose "a display panel which has a plurality of sections provided in the form of a matrix, each pixel section including at least a pixel for displaying an image for a first viewpoint and a pixel for displaying an image for a second viewpoint". Applicant contends that elements 27' and 27'' cannot be for displaying first and

second viewpoints because the arrangement of lenses does not have the effect of dividing images into one for a first view and one for a second view. The examiner disagrees with Applicant's arguments and maintains the rejection.

Niejzen discloses pixels 27' and 27'' for displaying images to first and second viewpoints, respectively. Pixels 27' and 27'' each only need to display an image to a viewpoint to disclose the limitations of claim 1. In other words, the first and second viewpoint may be at the same point or overlapping viewing area, as these viewpoints have not been specified as different in the claims (see Niejzen Figure 3 element b's). Applicant argues that Niejzen does not disclose the effect of dividing an image, however, whether Niejzen discloses this effect is moot since it is not a requirement of the structure of claim 1.

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., three-dimensional display) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Applicant argues that claim 13 is patentable over the cited references because there is "no specific teaching in either reference that $-V/L + 1$ would be greater than or equal to $\frac{1}{2}$ ". The examiner disagrees with Applicant's arguments and maintains the rejection.

To satisfy the equation $\frac{1}{2} \leq -V/L + 1$, L must have a value that is at least double the value of V. Given that Inoue discloses at least two projections per pixel (Figure 13 element 307), the pitch of L is therefore at least double the pitch of V.

Regarding the examiner's assertion that the pixel pitch is equal to the lens pitch, Applicant's arguments come to a same conclusion (see Remarks 7/5/06 Page 20, middle paragraph, first four lines). The examiner interprets the pitch to be the distance between adjacent elements.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Contact Information


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael H. Caley whose telephone number is (571) 272-2286. The examiner can normally be reached on M-F 8:30 a.m. - 5:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David C. Nelms can be reached on (571) 272-1787. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Michael H. Caley
September 7, 2006


mhc


ANDREW SCHECHTER
PRIMARY EXAMINER